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**Incremental® Comfort Conditioners
Suite II®
With Top Mounted
Hydronic Heat Section**



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Installation

The installation of this equipment shall be in accordance with the regulations of authorities having jurisdiction and all applicable codes. It is the responsibility of the installer to determine and follow the applicable codes. Sheet metal parts, self-tapping screws, clips, and such items inherently have sharp edges, and it is necessary that the installer exercise caution. This equipment is to be installed only by an experienced installation company which employs trained personnel.

Inspection

When the equipment is received, all items should be carefully checked against the bill of lading to be sure all crates and cartons have been received. All units should be carefully inspected for damage when received. If any damage is noticed, the carrier should make the proper notation on the delivery receipt acknowledging the damage. The carrier should also fill out a Carrier Inspection Report. The AAF-McQuay Incorporated Traffic Department should then be notified.

The unit nameplate should be checked to make sure the voltage agrees with the power supply available.

This unit is designed and built for through-the-wall installation in either new or existing buildings. The self-contained

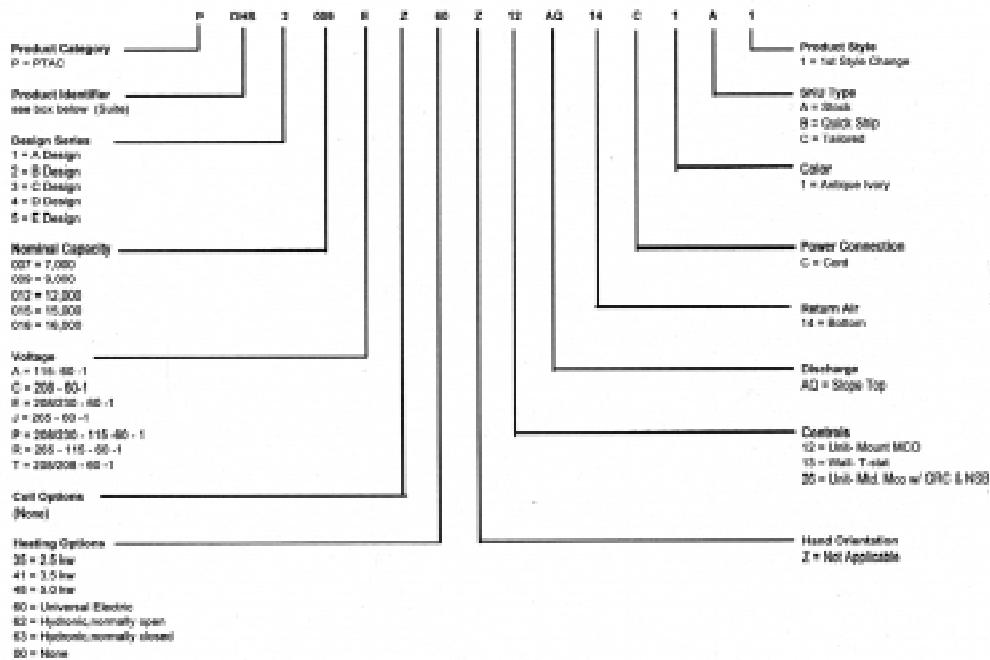
refrigerant system delivers cooling to the desired space. Heating is accomplished with a top mounted hydronic heating coil.

Each conditioner consists of the following components:

1. Cooling Chassis — Shipped separate in a single carton.
2. Wall Sleeve — Shipped separate in a single carton or in a multi-pack of 15.
3. Hydronic Heat Section — Shipped in a separate carton.
4. Outdoor Louver — Shipped in a separate carton.
5. Room Cabinet — Shipped in a separate carton with kickplate attached.

Figure 1. Exploded view of complete unit





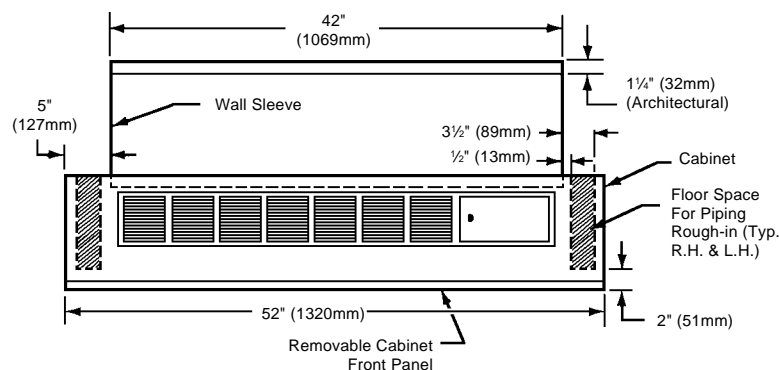
⚠ WARNING

Residential and institutional cleaning compounds can cause permanent damage to the packaged terminal unit. To avoid damage to unit controls and heat transfer surfaces, do not spray cleaning compounds onto the discharge grille, return air opening, or unit controls. Normal cleaning can be accomplished by wiping the unit surface with a damp cloth. When using cleaning compounds on carpets, floors or walls, turn the unit off to avoid drawing potentially damaging vapors into the package terminal unit.

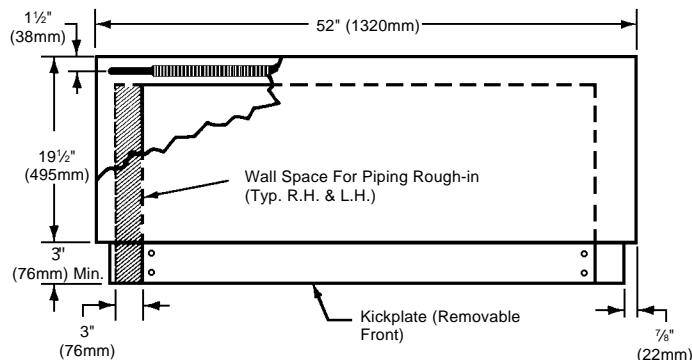
Wall Opening Requirements

Before installing the unit, check the wall opening to be sure the wall sleeve will slide into the opening unobstructed. For masonry walls, a lintel must be used to provide support over

each opening. The rough opening should measure 16¼" (413mm) high x 42¼" (1073mm) wide. The opening must be a minimum of 3" (76mm) above the finished floor (including carpeting).

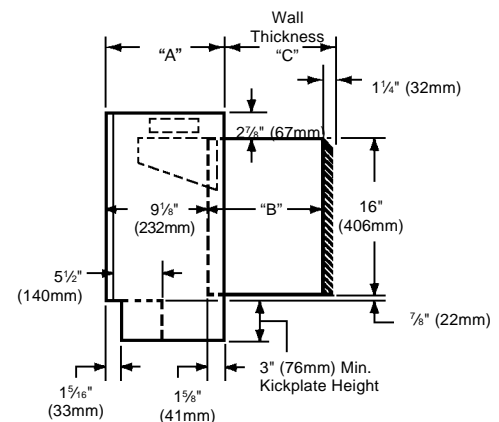


Note: Electrical rough-in should be located behind kickplate (removable front) and below wall sleeve.



1¼" RECESS FOR ARCHITECTURAL LOUVER		
"A" – IN. (MM) ROOM CABINET	"B" – IN. (MM) WALL SLEEVE	"C" – IN. (MM) WALL THICKNESS
17¾ (451)	13¾ (349)	5¾–6¾ (146–171)
16¾ (425)	13¾ (349)	6¾–7¾ (171–197)
15¾ (400)	13¾ (349)	7¾–8¾ (197–222)
14¾ (375)	13¾ (349)	8¾–9¾ (222–248)
13¾ (349)	13¾ (349)	9¾–10¾ (248–273)
12¾ (324)	13¾ (349)	10¾–11¾ (273–298)
11¾ (298)	13¾ (349)	11¾–12¾ (298–324)
10¾ (273)	13¾ (349)	12¾–13¾ (324–349)
10¾ (273)	14¾ (375)	13¾–14¾ (349–375)
10¾ (273)	15¾ (400)	14¾–15¾ (375–400)
10¾ (273)	16¾ (425)	15¾–16¾ (400–425)
10¾ (273)	17¾ (451)	16¾–17¾ (425–451)

Standard Size Wall Sleeve



Wall Sleeve Installation — Thin Wall Construction

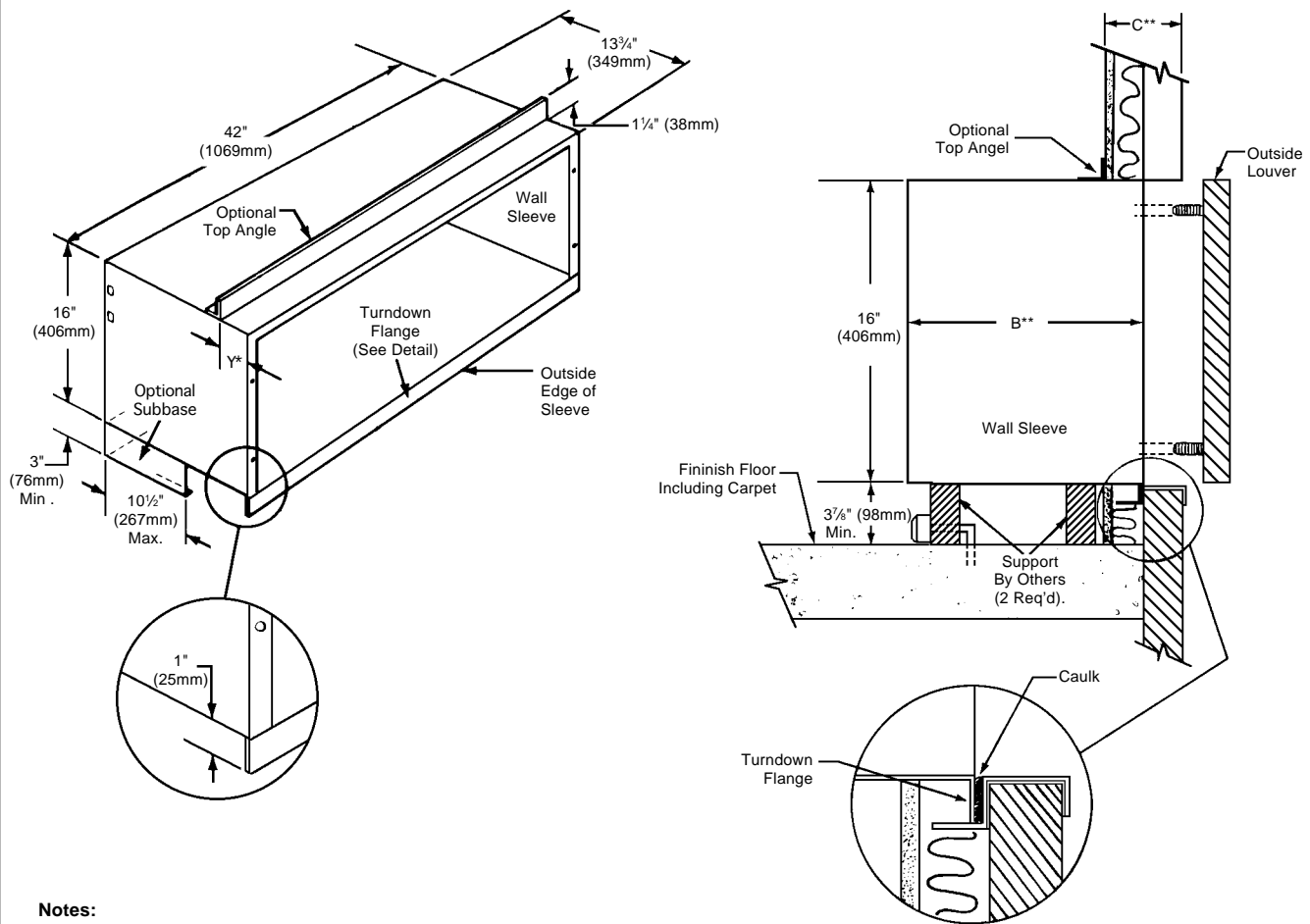
The standard wall sleeve is designed to be easily installed in a variety of wall constructions. For panel wall and thin wall construction, it is recommended that the optional top angle be used and the wall sleeve be supplied with a turned down flange (see Figure 3).

The recommended procedure for installing units in panel wall and thin wall construction is as follows:

1. Clean the opening of all debris that may interfere with installation.
2. Recess the wall opening so that the louver is flush with the exterior of the building (refer to Figure 3). The center of gravity is approximately $10\frac{3}{4}$ " (273mm) from the rear face

of the standard wall sleeve. If a subbase is not used, field support must be provided up to the center of gravity. This support can be metal, wood or concrete.

3. Level wall sleeve in all directions and anchor with appropriate fasteners. Use holes provided (see Figure 14, page 8) or drill additional holes as required to secure firmly. **Caution:** Do not drill holes in the base of the wall sleeve. Use shims between the wall and the wall sleeve to prevent wall sleeve distortion during anchoring.
4. Caulk the wall sleeve to the wall opening on both the inside and outside perimeter. This can be done from the inside of the building. Be careful **not** to plug the weep holes.



Wall Sleeve Installation — Thin Wall Construction

Applications utilizing field supplied louvers require additional considerations:

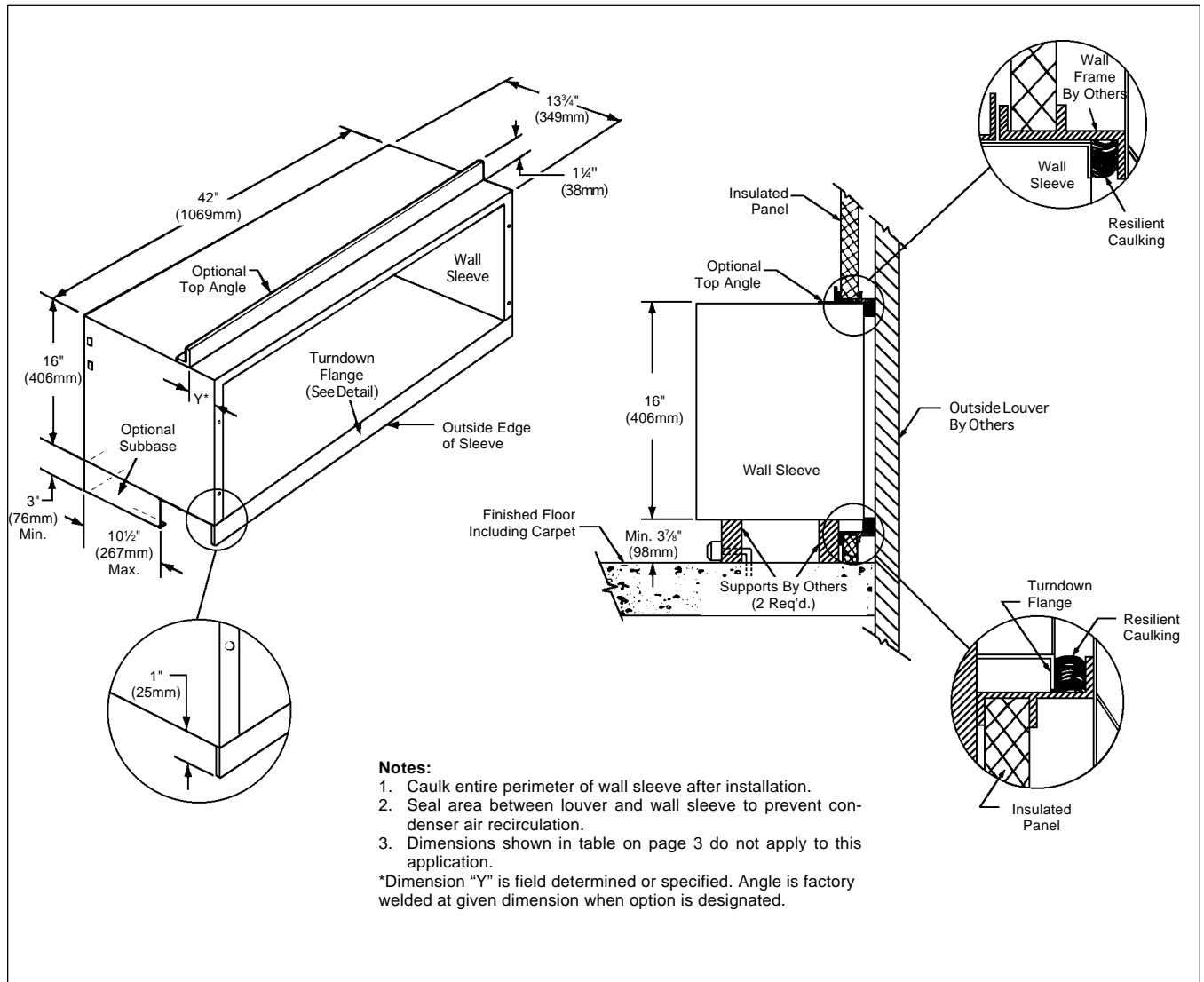
1. Louvers supplied by others must have 70% free area or a pressure drop not exceeding 0.05 in. w.g. (12.45 Pa) at 300 fpm (1.524 m/sec) face velocity, and a blade design that will not cause recirculation of air.
2. McQuay does not warrant the rain and water leakage resistance of its equipment when used with louvers by others.
3. All louvers by others must be approved by the manufacturer prior to installation.

Figure 4 illustrates a typical installation using a field supplied, continuous louver. This method is for illustration purposes only. Other variations may be employed as long as they meet manufacturer's louver specifications listed above and so long as adequate wall support is achieved. All structural supports and fasteners (except the optional top angle and turned down flange) are field supplied.

Installation of wall sleeves with continuous louvers is very similar to that of applications with factory furnished louvers. Assuming the louver meets the manufacturer's criteria, as stated previously, proceed to install the wall sleeve as follows:

1. Clean the opening of all debris that may interfere with installation.
2. Position the wall sleeve into the wall so that it is flush with the exterior wall. **Important:** If the wall sleeve has been installed into a thick wall, make certain the wall sleeve protrudes into the room a minimum of 1 1/8" (29mm) beyond the finished wall surface. This is to accommodate the heat section and room cabinet. The center of gravity is 10 3/4" (273mm) from the rear face of the standard wall sleeve. If no subbase is being employed, adequate support for the wall sleeve up to the center of gravity must be provided at the job site. This support can be wood, metal or concrete.
3. Level wall sleeve in all directions and anchor with appropriate fasteners using holes provided (see Figure 14, page 8), or drill additional holes as required to secure firmly. **Caution:** Do not drill holes in the base of the wall sleeve. Use shims between the wall and the wall sleeve to prevent wall sleeve distortion during anchoring.
4. Caulk the wall sleeve to the wall opening on both the inside and outside perimeter. This can be done from the inside of the building. Be careful **not** to plug the weep holes.

Figure 4. Wall sleeve installation using top angles and field supplied continuous louver



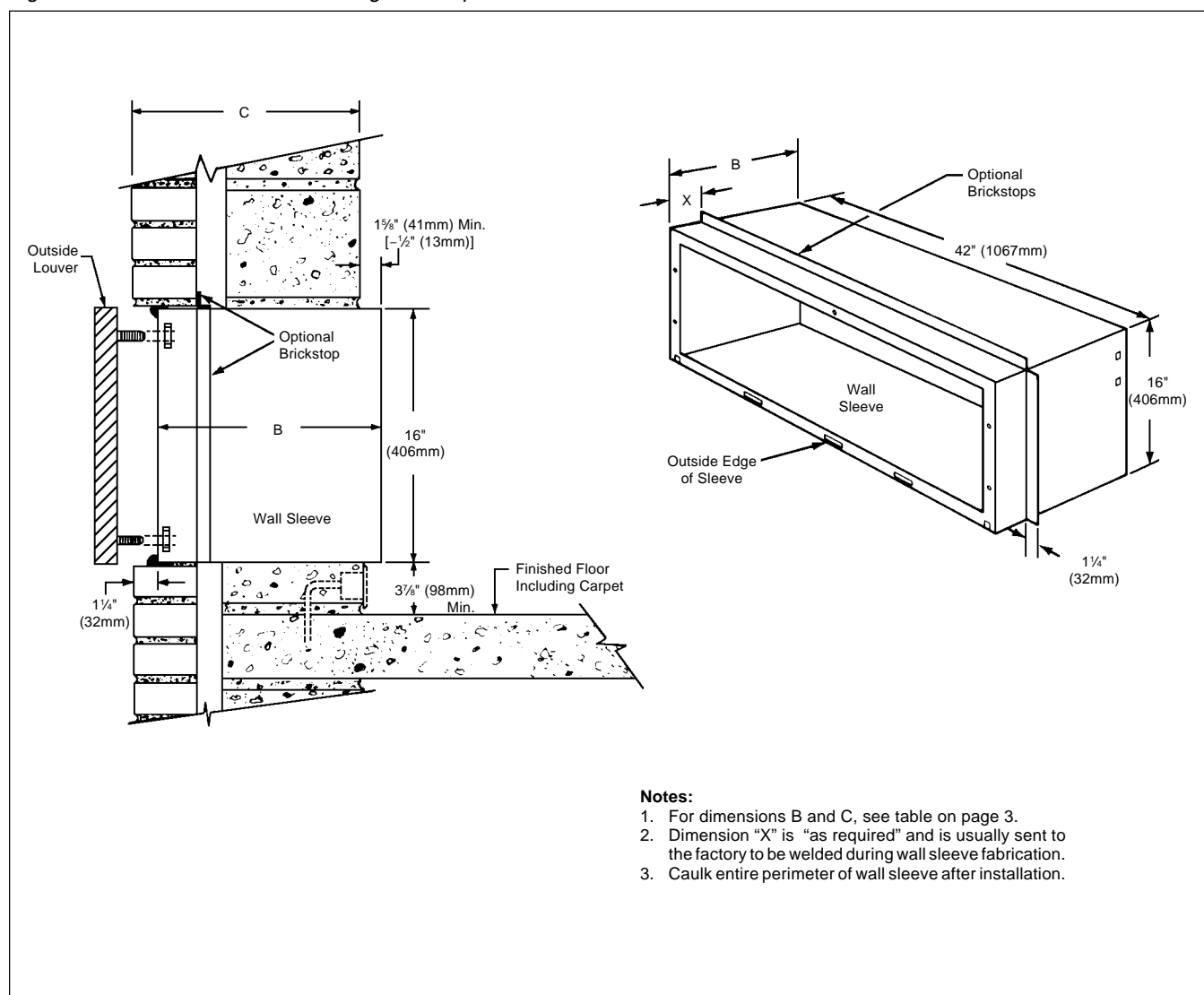
Wall Sleeve Installation — Thick Wall Construction

A heavy-gauge, corrosion resistant wall sleeve is provided for each unit. The wall sleeve is either shipped in a separate carton or shipped in a multi-pack of 15.

Typical installation for masonry walls is shown in Figure 5. The recommended installation procedure for this type of construction is as follows:

1. Clean the opening of all debris that may interfere with installation.
2. Be sure the unit's center of gravity falls within the load bearing surface of the wall. The center of gravity for the unit is approximately 10¾" (273mm) from the rear edge of the wall sleeve. If the center of gravity is not within the load bearing surface, then additional support such as wood, metal or concrete must be provided in the field.
3. Place a thin pad of soft mortar on the bottom of the opening. **Important:** Make certain the wall sleeve protrudes into the room a minimum of 1⅛" (29mm) beyond the finished wall surface to accommodate the heat section and room cabinet. Be sure to recess the wall sleeve enough to accommodate outside louver. This recess is ⅝" (9.5mm) for stamped louvers and 1¼" (32mm) for architectural louvers. The louver should be flush to exterior surface when completed.
4. Reattach the heat section and room cabinet. The wall sleeve should also be recessed enough to accommodate the outside louver.
5. After the mortar has dried, remove the masonry support from the wall sleeve. **Note:** The wall sleeve is not intended to replace the lintel.
6. Level wall sleeve in all directions and anchor with appropriate fasteners (as shown in Figure 14, page 8). A ⅝" (8mm) hole is provided on each side, 2" (51mm) down from the top and 2" (51mm) in from the rear of the wall sleeve. It may necessary to drill additional holes in the wall sleeve to firmly secure it. **Caution:** Do not drill holes in the base of the wall sleeve. Use shims between the wall and the wall sleeve to prevent wall sleeve distortion during anchoring.
7. Caulk the wall sleeve to the wall opening on both the in-side and outside perimeter using a resilient, nonhardening caulk such as silicone. Be careful **not** to plug the weep holes.

Figure 5. Wall sleeve installation using brickstops

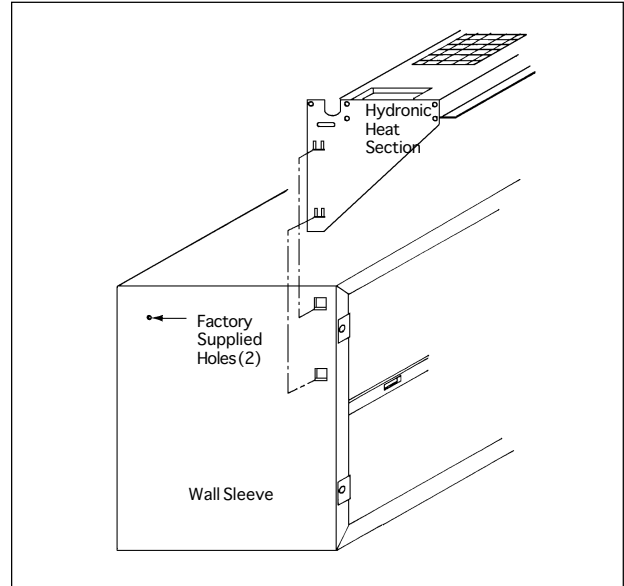


Heat Section Installation

The heat section is designed to be “snapped” into the top of the wall sleeve (see Figure 6). There are four square holes provided in the wall sleeve, two on each side, for coil attachment. Assemble the heat section to the wall sleeve as follows:

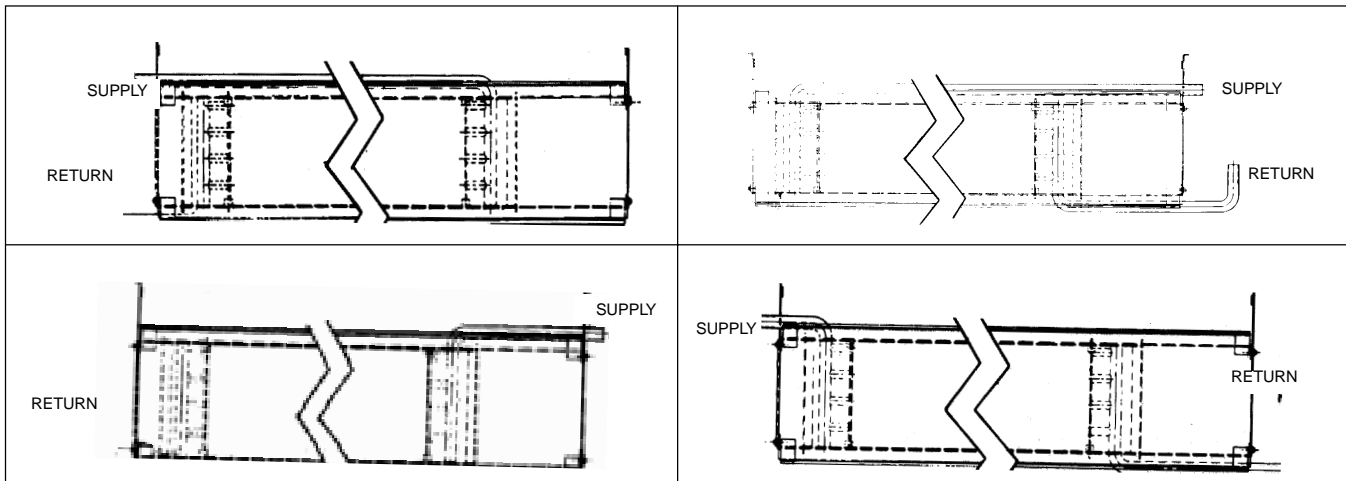
1. Unpack the heat section and inspect for any shipping damage. Report any damage found to the carrier.
2. Check the heat section against the plans to make certain the coil supplied has the connections match the specifications.
3. Firmly attach the heat section to the wall sleeve by lining up the heat section hooks with the square holes supplied in the wall sleeve. Snap the heat section in place by exerting pressure downward.
4. The valve is always connected to the supply side of the coil. There are seven possible coil arrangements available. Each is shown below. Select the illustration below that matches the coil supplied and pipe it according to the illustration. Install valve and other accessories including air vents, steam traps, stop balance valves, etc., as specified by the design engineer.
5. For valve installed on right side of the unit, make electrical connection to matching cap extending from the control box. For left side valve, make electrical connection to cap mounted to left side of chassis.

Note: When the heating medium is steam, the supply connection should be attached to the uppermost tube and the return to the lower tube. The coil is pitched in the casing to allow drainage of condensate.

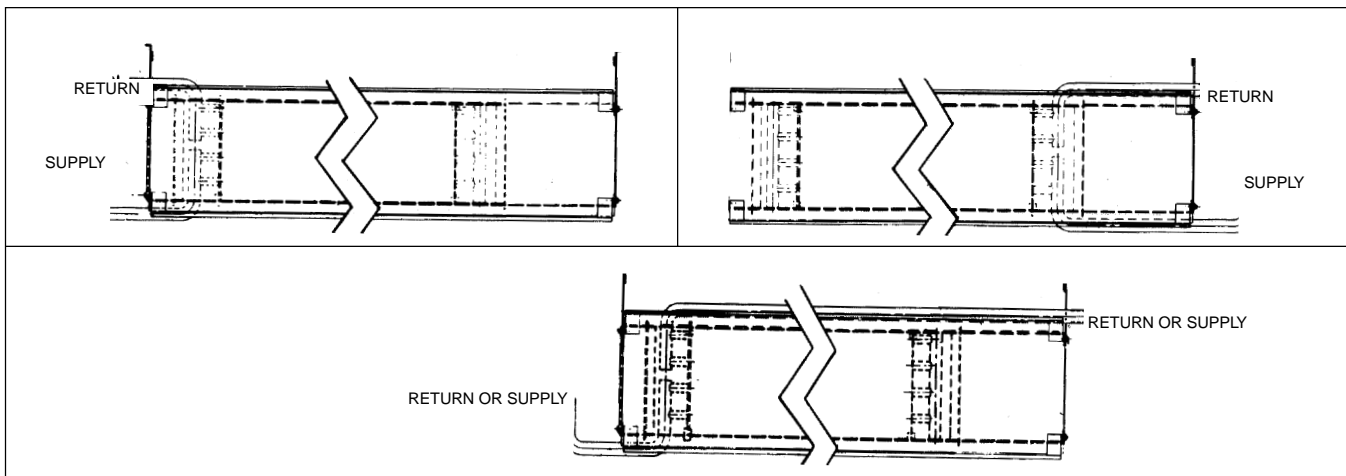


When the heating medium is hot water, the supply connection should be made to the lowermost tube and the return to the uppermost tube. Hot water coils should be “flooded” to minimize air entrapment.

Steam Coils



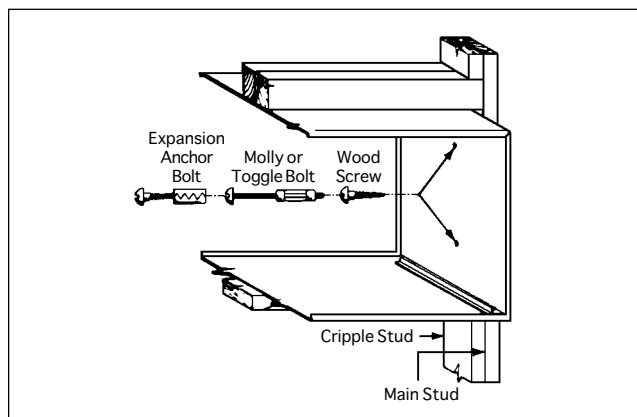
Hot Water Coils



Anchoring

Anchoring the wall sleeve in the opening is accomplished as shown in Figure 14. It is recommended that rubber isolation washers be used with the fasteners to minimize sound transmission from the equipment to the wall, at the point of contact.

A $\frac{5}{16}$ " (8mm) hole is provided on each side, 2" (51mm) down from the top and 2" (51mm) in from the rear of the wall sleeve. It may be necessary to drill additional holes in the wall sleeve to firmly secure it. Caution: Do not drill holes in the base of the wall sleeve. Use shims between the wall and the wall sleeve to prevent sleeve distortion during anchoring.



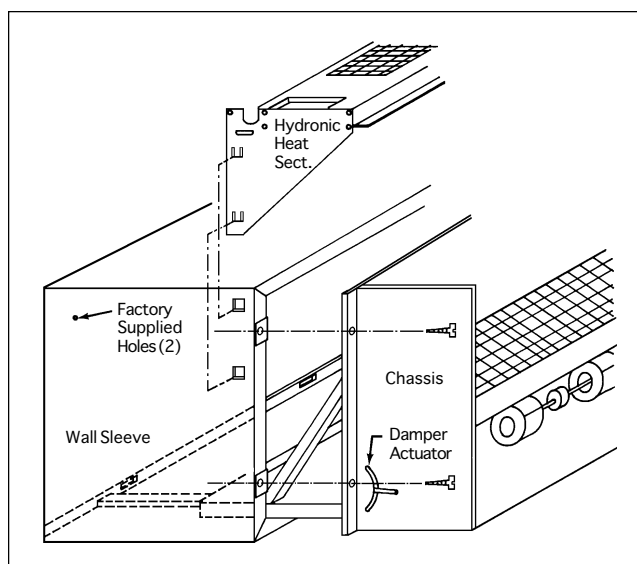
Installation of Louvers

1. Remove louver from its shipping carton which also contains a hardware package for mounting the louver.
2. Remove outside weather plug and weather panel from wall sleeve.
3. Make a temporary handle by looping a piece of flexible wire or heavy cord through the louver. This enables the installer to keep a firm grasp on the louver when installing from inside the room.
4. Push the louver through the opening at the rear of the wall box, then pull the louver back to the wall sleeve flange so that the louver studs pass through the holes in the flange.
5. Attach washers and nuts and secure louver in place.
6. If the cooling chassis is not to be immediately installed, replace the weather panel.

Installation of Cooling Chassis

Correct installation of the cooling chassis is extremely important to insure the proper operation of the unit. Install the chassis as follows:

1. Remove outer carton and inspect for any shipping damage. Report any found to the carrier.
2. Check nameplate data on chassis to insure that the correct job site distribution has been made with respect to cooling capacities. Generally, corner rooms require larger capacities.
3. Remove chassis from carton by pulling evenly on substantial portion of unit. **Caution:** Do not pull on evaporator fan housing, control box or compressor.
4. If wall sleeve has been previously installed, remove temporary weather panel.
5. Check all fasteners to make certain they have not come loose during shipment. **Do not** loosen nuts holding down compressor; they are set at the factory.
6. **Do not** lubricate motors before start-up. Motors are factory lubricated. Consult "Scheduled Maintenance" section on page 12 for lubrication instructions.
7. Place Tinnerman clips from bag onto wall sleeve. Clips and mounting screws are enclosed in a bag attached to the top of the condenser coil cover.
8. If louver has not been previously installed, connect to wall sleeve as described above.
9. If louver is supplied by others, as illustrated in Figure 4, page 5, be sure to install foam type gaskets on all sides of the condenser coil to prevent recirculation or bypass of condenser air.
10. Slide chassis into wall sleeve until firmly seated against weather seals of wall sleeve. **Caution:** Do not push on



coil surface or control box cover. Make sure the compressor tubing does not catch when inserting chassis.

11. Secure chassis to wall sleeve with four (4) sheet metal screws packaged with the Tinnerman clips.
12. Plug electrical cord into receptacle. Excess cord should be coiled up neatly and stored in the conditioner.
13. Set the manual damper operator in open or closed position as desired. On units equipped with the optional electric fresh air damper, set the "Auto-Off" switch in the desired position. In "Auto," the damper is open whenever the indoor fan motor is running. The "Auto-Off" switch is located on the bottom front face of the control box.

14. Set cycle switch (located on the bottom front face of the control box) for constant or cycle indoor fan. With the switch in "Cycle" position, the indoor fan will shut off when the thermostat de-energizes cooling or heating.

15. Set the temperature limiting device to the desired range of thermostat operation. (See page 9 for details on temperature limiting device.)

Optional Adjusting Temperature Limiting Device

As an option, a temperature limiting device can be furnished to allow the owner to set the minimum and/or maximum temperature selections. Adjust this device as follows:

1. Remove temperature knob and metal cover plate.
2. Loosen the hold-down screw with Phillips screwdriver.
3. Adjust cams to attain desired rotation limit.

4. Tighten hold-down screw.
5. Replace metal cover and temperature knob.

Once unit is in operation, rotate knob to maximum heat and/or maximum cool to check temperature limits. Repeat procedure listed above until desired temperature limitations are achieved.

Electrical Service

All wiring should be in accordance with all local and National Electrical Code requirements.

Units are supplied with an attachment cord and plug which exit from the bottom of the conditioner on the control side. The cord for 115V, 208V and 230V has a usable length of 72" (1829mm) from where it exits the conditioner. The use of extension cords to increase the length of the plug/cord set is **not** recommended. Units to operate on 265V are supplied

with a 14" (356mm) cord for connection to a subbase.

The attachment plug size should be used to determine the circuit ampacity and overcurrent protection. Time delay, overcurrent protection devices are recommended to prevent unit damage and to avoid nuisance tripping.

Outlets are generally located beneath the conditioner, on or recessed in the wall so it is concealed by the conditioner overhang and kickplate.

Installing Room Cabinet

The room cabinet is the last piece to install. The following instructions assume all components (wall sleeve, heat section, louver and chassis) have been installed, piped and anchored. All major room construction should also be complete so as not to damage the room cabinet after it has been installed. Attaching the room cabinet can be completed as follows:

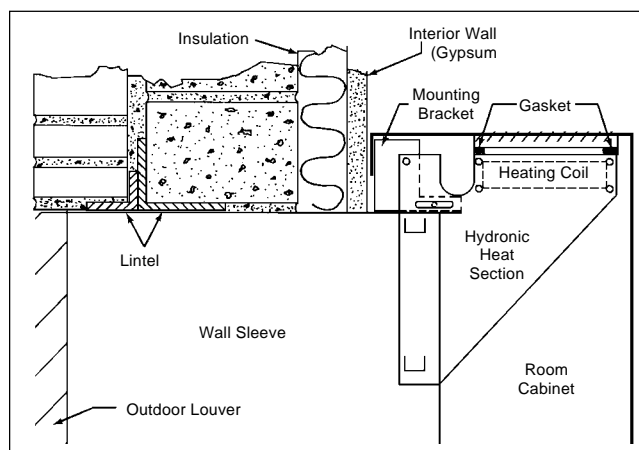
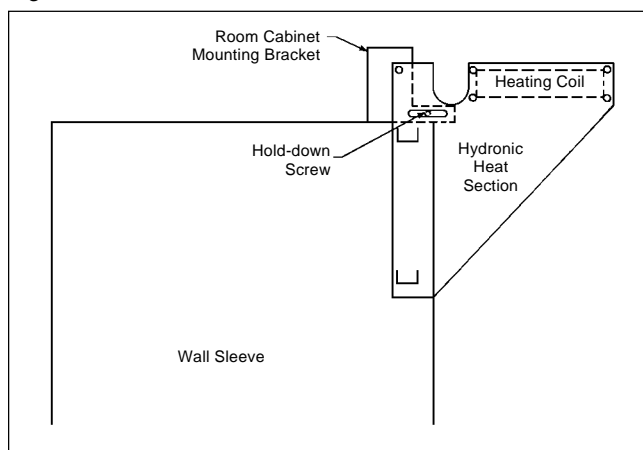
1. Remove the two (2) steel mounting brackets and screws from the bag enclosed and install them to the heat section (see Figure 16).
2. Adjust the bracket forward or backward so that when the room cabinet is installed, the discharge grille seals against the flanges of the heat section. Final adjustment of the bracket will occur after the room cabinet has been set in place. There is a 1" (25mm) adjustment in the mounting brackets to accommodate any variations in the wall.
3. Finger tighten the hold-down screw on the mounting bracket against the heat section bracket.
4. Repeat procedures 1 through 3 for the opposite side.

After the brackets have been installed, the room cabinet

should be lifted into place.

1. Firmly grasp the room cabinet and lift it over the heat section. There are notches in the back flanges of the room cabinet that rest on the wall sleeve to assure it is centered.
2. Align the notches of the room cabinet on the wall sleeve and firmly push the cabinet downward until it slips behind the room cabinet mounting brackets and seats on the wall sleeve (see Figure 17).
3. Push the mounting bracket backward against the room cabinet flange and securely tighten the hold-down screw.
4. Screw the cabinet to the wall using the screws provided. There are two (2) screw holes provided on each side located on the inner flanges of the room cabinet.
5. Loosen the four (4) wing nuts on the kickplate and adjust the kickplate the required distance to the floor.
6. Tighten the wing nuts firmly.
7. Wipe any smudges or dirt off the room cabinet using a mild cleaner and a soft cloth.

Figure 16.



Equipment Start-up

Initial start-up of the Incremental® conditioners by experienced personnel is usually the responsibility of the installing contractor. This start-up consists of inspecting and operating the equipment for all functions at the time of initial installation, and making necessary adjustments. It also includes demonstrating its proper operation to the owner or the owner's agent. Note that unless otherwise specifically agreed to in writing, no field labor, start-up service or the like is included in the price of the equipment. After the equipment leaves the factory, it may become damaged or maladjusted during transportation or on the job. Sometimes wires are disconnected accidentally, or fan motors move on their bases due to rough handling, causing fans to strike. The correction of such conditions is part of the start-up.

Before Starting Equipment, Make Certain That:

1. Correct voltage has been supplied to the equipment.
2. The electrical plug from the control box has been inserted into the receptacle.

During Start-up (Applies Only to Standard Equipment):

1. Set manual ventilation damper to OPEN or CLOSED

position as required by owner. Set "Auto-Off" switch as required if unit is equipped with electric fresh air damper.

2. Push HIGH button to preselect fan speed. Push HEAT button. Move thermostat to the extreme heating position (counterclockwise). If the "Cycle/Constant" switch is placed in the "Cycle" position, heat and indoor fan motor should cycle on and off as the thermostat requires. Push LOW button. Fan should change to low speed.
3. Push HIGH button to preselect fan speed. Push COOL button. Move thermostat to the extreme cooling position (clockwise). Compressor and indoor fan motor should cycle on and off as the thermostat requires. Push LOW button. Fan should change to lower speed. Outdoor fan should be on whenever compressor operates.
4. Push FAN button. Indoor fan should operate at high or low speed as selected. Neither heater nor compressor should continue to operate.
5. Push OFF or STBY button. Fan should stop, and neither heater nor compressor should continue to operate.

Scheduled Maintenance

Incremental® conditioners are built to last. With proper care, the unit should provide uninterrupted service for many years. Scheduled maintenance of this equipment, as described below, is the key to the equipment's longevity.

1. Air filters must be cleaned at regular intervals. Twice annually may be adequate in some areas while twice monthly may be required in others. Areas with high dirt and lint content or heavy usage of units require more frequent filter maintenance than those areas of relatively clean operating or low usage conditions. Unit malfunction may occur if air filters are not kept clean.
2. McQuay recommends that every year the chassis be removed for a thorough checkup. This should be completed as follows:
 - a. Unplug unit from power source.
 - b. Remove front panel and unplug valve from control box.
 - c. Vacuum heating coil to remove any accumulated dust.
 - d. Remove chassis from cabinet and move it to the maintenance department. Replace with spare chassis or weather plate.
 - e. Check all seals and insulation and repair as required.
 - f. Check all wiring and controls for hazardous conditions.

- g. Cover motors and control module with watertight material and wash evaporator coil, condenser coil and base pan using hot water and a mild soap. **Do not** use a harsh detergent for it may corrode the aluminum fins.
- h. Clean condensate drain and clear weep holes.
- i. Dry equipment thoroughly, especially electric parts and insulation.
- j. Clean any rust spots with steel wool and paint with rust inhibiting paint.
- k. Clean insulation or replace if necessary.
- l. Check all fasteners and tighten as required.
- m. Clean and oil damper door and linkage.
- n. After the first year, oil fan motors. For 8-hour/day operation, add 8 to 10 drops to each bearing. For 24-hour/day operation, add 16 to 20 drops to each bearing. Use a commercial grade electric motor oil or SAE #10 nondetergent motor oil.
- o. Test run chassis before re-installing or returning to spare parts stock.

WARNING

Residential and institutional cleaning compounds can cause permanent damage to the packaged terminal unit. To avoid damage to unit controls and heat transfer surfaces, do not spray cleaning compounds onto the discharge grille, return air opening, or unit controls. Normal cleaning can be accomplished by wiping the unit surface with a damp cloth. When using cleaning compounds on carpets, floors or walls, turn the unit off to avoid drawing potentially damaging vapors into the package terminal unit.

Recommended Spare Parts

An inherent advantage of the Incremental system is that failure of any one part affects only one Incremental conditioner and does not interrupt the operation of the rest of the system. A further advantage is that a failed part can be quickly and easily replaced, thus minimizing the inoperative time of the equipment. This is so, however, only if a replacement part is quickly available. In order to replace a failed part quickly and keep all Incremental conditioners in good operating condition, McQuay recommends that at the time Incremental conditioners are purchased, owners arrange for a small stock of replacement parts.

Where an owner carries such a stock, **immediate** replacement of a defective part is possible. The defective part can then be returned to McQuay or one of its authorized service stations. So long as it is still in warranty, it is repaired or replaced and returned to the owner without cost for shop labor and material. Thus, the stock of replacement parts is constantly replenished. To the right is listed the kind of parts which McQuay recommends be carried in stock, together with the quantity of parts recommended per 100 Incremental conditioners installed.

Part Name

Qty. Per
100 Units

Cooling Chassis	1
Compressor Overload Device	1
Compressor Running Capacitor	1
Evaporator Fan Motor	1
Condenser Fan Motor	1
Pushbutton Switch	2
Damper Switch	2
Thermostat	2
Knob for Thermostat	6
Control Relay (if used)	1
Damper Motor (if used)	2
Touch-up Paint (1 pt. spray can)	1
Oil for Fan Motors (gallons)	1

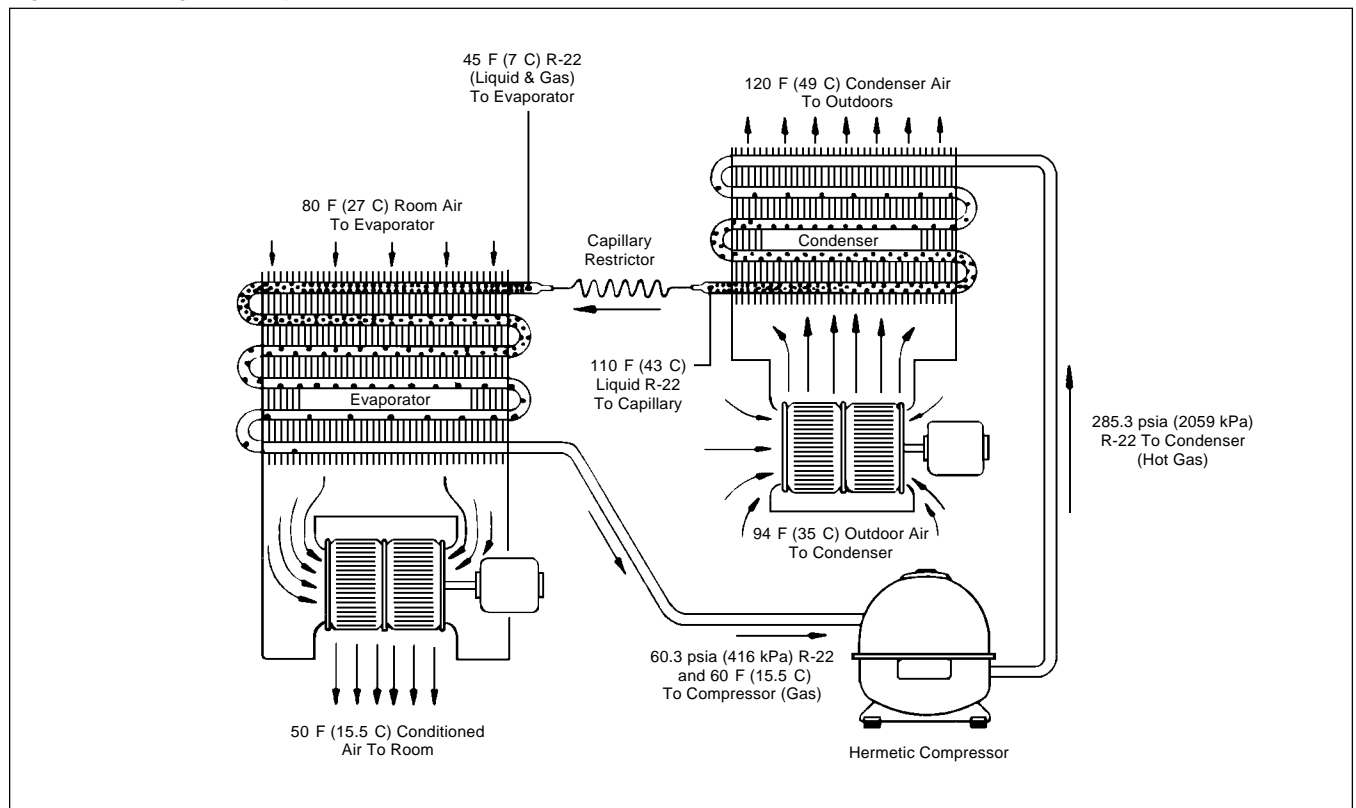
For the current spare parts list and applicable prices, see your McQuay representative or write McQuayService, P.O. Box 1551, Minneapolis, MN 55440.

Refrigeration Cycle

Every motor driven refrigeration system operates on the Carnot cycle. A practical understanding of what goes on at the various steps in this cycle can be a big help to the troubleshooting mechanic. Figure 18 illustrates the refrigeration cycle. The diagram shows what occurs in each component of

a hermetically sealed system, as used in all McQuay equipment. The temperatures shown are typical of what they might be when the air entering the condenser (outdoor temperature) is 95 F (35 C) and the temperature of the conditioned space is 75 F to 80 F (24 C to 27 C).

Figure 18. Refrigeration cycle



Troubleshooting Chart

These items should be checked by a qualified service technician only.

TROUBLE	CAUSE	CURE
1. Blowers won't operate on COOL.	<ul style="list-style-type: none"> a. No power. b. Faulty pushbutton switch. c. Loose connections at pushbutton switch. 	<ul style="list-style-type: none"> a. Check supply line fuses, circuit breakers, and be sure the power is on. Blown fuses would indicate circuit overloading, a short circuit, or a grounded condition in the circuit. Voltage supply to the equipment should be checked. Voltage must be within 10% of voltage given on data plate. b. Replace. c. Tighten.
2. Blowers operate on COOL but compressor doesn't start.	<ul style="list-style-type: none"> a. Thermostat set too high. b. Heat valve is open and heat is on. c. Low voltage. d. Fault pushbutton switch. e. Faulty connection at pushbutton switch. f. Defective wiring to thermostat. g. Loose connections at compressor terminals. h. Wiring to compressor terminals defective. i. Loose connections in compressor overload device. j. Starting capacitor malfunctions (open circuited, short circuited or loss of capacity). k. Defective compressor motor (short circuited, open circuited, grounded). 	<ul style="list-style-type: none"> a. Adjust. Rotate control knob to "Cooler." b. Close heat valve. c. Check as above. d. Replace. e. Tighten. f. Replace. g. Tighten. h. Replace. i. Tighten. j. Replace. k. *Replace cooling chassis prepaid to nearest McQuay authorized warranty station.
3. Blowers run on COOL and compressor starts but stops after a short interval.	<ul style="list-style-type: none"> a. Operation of overload device due to overloading compressor motor. 	<ul style="list-style-type: none"> a. Check voltage supply. Clean condenser inside and out. Check at outside face of condenser for recirculation of condenser air. Put air "splitters" in, if missing. Check to make sure condenser blower/fan is operating properly. Check compressor for short circuit. If defective, *ship cooling chassis to nearest McQuay authorized warranty station.
4. Blowers run on COOL and compressor starts and runs, but compressor occasionally stops (on overload device).	<ul style="list-style-type: none"> a. Low voltage due to overloaded circuits within building or throughout the local power system. Due to varying power demands, this condition might exist only at certain times during the day or on very hot days. b. High voltage due to fluctuations in local power system; usually occurs at low load periods of the day. c. Partial short circuit in compressor motor. Under normal loading a compressor with a partial short circuit might appear to be operating all right; increased condensing air temperature might then cause a short. 	<ul style="list-style-type: none"> a. Run separate electric line to equipment. Consult local power company. b. Consult local power company. c. If confirmed, ship cooling chassis prepaid to nearest McQuay authorized warranty station.
5. Compressor starts and runs on COOL but blowers do not run.	<ul style="list-style-type: none"> a. Faulty pushbutton switch. b. Open circuited blower motor. c. Blower rubbing against its housing. d. Bearings on blower motor seized. e. Loose connection at pushbutton switch. 	<ul style="list-style-type: none"> a. Replace. b. Replace. c. Adjust blower motor or blower wheel position. d. Lubricate motor with SAE No. 10 oil. (It may be necessary to remove blower assembly to do this.) e. Tighten.
6. Compressor starts and runs on COOL but blowers do not run.	<ul style="list-style-type: none"> a. Operation of the internally connected overload device due to a short circuit in blower motor. b. Windings, rubbing of blower wheel or lack of lubrication in blower motor bearings. 	<ul style="list-style-type: none"> a. Adjust blower/fan wheel on shaft or blower motor mounting. Lubricate with SAE No. 10 oil (see above). b. Adjust blower wheel or motor or replace wheel.
7. Equipment gives electrical shock.	<ul style="list-style-type: none"> a. Grounded electrical circuit. 	<ul style="list-style-type: none"> a. Eliminate ground.
8. Insufficient cooling capacity.	<ul style="list-style-type: none"> a. Equipment standing too long without being run. b. Insufficient airflow through condenser due to: <ul style="list-style-type: none"> 1) Dirty condenser. 2) Obstructed louvers on outer cabinet or wall box. 3) Condenser blower/fan not running. 4) Condenser blower/fan not up to speed. 5) Condenser blower/fan slipping on motor shaft. 6) Recirculation of condenser air. c. Insufficient airflow through evaporator due to: <ul style="list-style-type: none"> 1) Dirty evaporator. 2) Ice on evaporator coils. 3) Dirty air filter. 4) Obstructed discharge grilles. 5) Evaporator blower motor not running. 6) Evaporator blower motor not up to speed. 7) Evaporator blower slipping on motor shaft. d. Heat load in room exceeds capacity of equipment. e. Windows and doors in room are open. 	<ul style="list-style-type: none"> a. If the air conditioner is allowed to stand for an extended length of time without being run on COOL, it is possible for all the refrigerant to become absorbed in the oil inside the compressor and refrigeration circuit. If this should happen, there will be no cooling until the necessary working pressures have been established. This will take about 5 minutes of continuous running. b. <ul style="list-style-type: none"> 1) Clean. 2) Remove obstructions. 3) Check same as in the case of malfunctioning conditioner air blower. 4) Check for correct voltage. Oil blower motor if necessary. 5) Adjust blower position and tighten setscrew. 6) Correct as in No. 3 above. c. <ul style="list-style-type: none"> 1) Clean. 2) Turn equipment off to let ice melt. 3) Clean or replace. 4) Remove obstructions. In case of top discharge equipment, make sure books, magazines, etc., are kept off the equipment. 5) Check as in No. 1. 6) Check for correct voltage. Oil motor if necessary. 7) Adjust motor wheel position and tighten setscrew. d. Refer to original load calculations; recalculate heat load. e. Close therm.

Continued on next page

Troubleshooting Chart

These items should be checked by a qualified service technician only.

TROUBLE	CAUSE	CURE
8. Insufficient cooling capacity (continued).	f. Compressor not pumping, indicated by: 1) Low wattage. 2) Condenser not warm, evaporator only partially cool or not at all. g. Restricted capillary tube or strainer, indicated by: 1) Frost on capillary or strainer. 2) Low wattage. 3) Condenser not warm. 4) Evaporator partially frosted, only partially cool or not at all.	f. *Ship prepaid to nearest McQuay authorized warranty station. g. 4) *Ship prepaid to nearest McQuay warranty station.
9. Too much cooling.	a. Thermostat set too low. b. Defective thermostat.	a. Adjust. b. Replace.
10. "Sweating"	a. Condensate drain from evaporator to condenser plugged. b. Insulating seals on equipment damaged. c. Evaporator blower motor not up to speed. d. Evaporator blower incorrectly positioned.	a. See No. 1. b. Open heat valve or turn on heating system. c. Check for correct voltage. Oil motor if necessary. d. Adjust.
11. Blowers won't operate on HEAT.	a. No power. b. Heat is off (equipment with heat fan lockout). c. Faulty pushbutton switch. d. Loose connections at pushbutton switch. e. Thermostat set too low.	a. See No. 1. b. Open heat valve or turn on heating system. c. Replace. d. Tighten. e. Adjust. Rotate control knob to "Warmer."
12. **Equipment is noisy.	a. Blower rubbing against enclosure. b. Blower motor bearings are dry. c. Loose blower hold-down nuts on motor-bracket assembly. d. Refrigerant absorbed in compressor oil after extended shutdown. e. Equipment improperly installed. f. Damper solenoid hums. g. Loose terminal box cover on side of compressor. h. Loose electrical components. i. Copper tubing vibrating. j. Harmonics. k. Loose sheet metal parts.	a. Adjust fan position on motor shaft or reposition fan motor bracket assembly. b. Lubricate with SAE No. 10 or replace motor. c. Align blower assembly and tighten nuts. d. Noise will disappear after equipment runs awhile. e. Make necessary adjustments to components. f. Check for proper adjustment. Apply silicone oil or grease to gap between solenoid and armature. g. Tighten. h. Fasten securely. i. Adjust by bending or applying tape. j. Occasionally equipment will have noisy operation for no apparent reason. Inspection has revealed no loose components that might be the source of the noise. Due to the action of the compressor, it is possible to have internal noise develop if the refrigerant tubing has become bent even slightly. To distinguish this condition from the simple rattle producing vibration caused by loose screws, nuts and other components, grasp the refrigerant tubing at various points throughout the system until a point is found where the noise is eliminated or reduced. Bend the copper tubing very gently until the noise disappears. k. Tighten.
13. Insufficient or no heat.	a. No steam or hot water being applied. b. No power. c. Faulty pushbutton switch. d. Loose connection at pushbutton switch. e. Thermostat set too high. f. Thermostat faulty. g. No power output on transformer secondary. h. Inoperative valve. 1) Steam valve N/C. 2) Hot water valve N/O.	a. Contact building management. b. Check power supply line fuses, circuit breakers. Blown fuses would indicate circuit overloading, a short circuit, or a grounded condition in the circuit. c. Replace. d. Replace wire or tighten. e. Adjust rotate knob to "Warm." f. Replace. g. Replace. h. 1) Temporary lock valve open; replace. 2) Replace.

Notes: This guide was prepared with standard equipment in mind. If equipment is special, it may not be entirely applicable.

* If equipment is still in warranty.

**** Note:** Before trying to correct the noise, determine its cause: conditioned air blower, compressor or condenser blower. Operate the conditioned air blowers only. If this doesn't cause the noise, operate on cooling. Then disconnect one compressor lead. If the noise stops, the compressor is the source. If not, it is caused by the condenser blower.

Approximate Shipping Weights

Chassis:

Size 007 141 lbs. (64 kg)
 Size 009 145 lbs. (66 kg)
 Size 012 149 lbs. (68 kg)
 Size 015 153 lbs. (69 kg)

Wall Sleeve: Uninsulated 36 lbs. (16 kg)

Hydronic Heat Section:

Steam 12 lbs. (5 kg)

Hot Water 12 lbs. (5 kg)

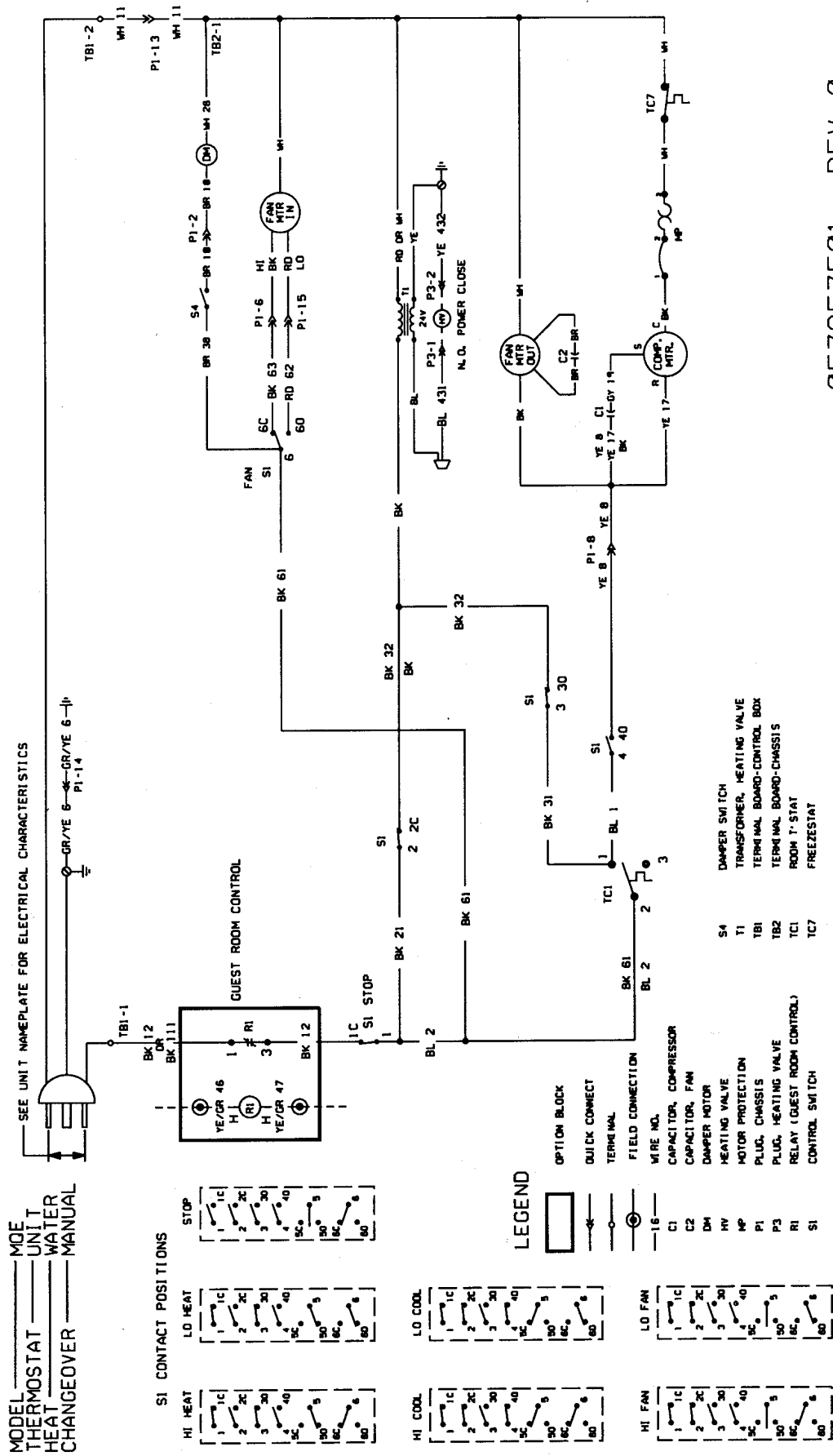
Room Cabinets:

Standard 10¾" (273mm) depth 60 lbs. (27 kg)

For each additional inch of room cabinet depth add 4 lbs. (2 kg) to the standard depth cabinet.

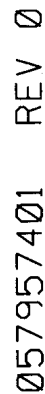
Louvers: Architectural 8 lbs. (4 kg)

Wiring Diagram — Standard Manual Changeover Control (Hydronic Heat With Normally Open Valve)



057957501 REV 0

MODEL _____ MOE _____
THERMOSTAT _____ UNIT _____
HEAT _____ STEAM _____
CHANGEOVER _____ MANUAL _____



Installation, Service and Warranty Policy

One-Year Warranty of Entire Conditioner

AAF-McQuay Incorporated, hereinafter referred to as the "Company," warrants to the original owner that each entire Incremental Comfort Conditioner is free from defects in material and workmanship. Any part or portion thereof which becomes defective under normal use during the period of this warranty will be repaired or replaced provided the Company's examination shall prove to its satisfaction that the part was or became defective under normal use. This warranty contemplates that first year maintenance labor was arranged for with the installer or otherwise at the time the conditioner was purchased or installed. The Company's examination shall prove to its satisfaction that the part was or became defective under normal use. This warranty contemplates that first year maintenance labor was arranged for with the installer or otherwise at the time the conditioner was purchased or installed. The Company's obligations under this warranty are limited to: (a) repairing the defective part or (b) furnishing a replacement part provided the defective part is returned to the factory, transportation charges prepaid. No reimbursement will be made for expenses incurred in making field adjustments or replacements unless specifically authorized in writing by the Company.

This warranty constitutes the buyer's sole remedy. It is given in lieu of all other warranties. There is no implied warranty of merchantability or fitness for a particular purpose. In no event and under no circumstance shall the Company be liable for incidental or consequential damages, whether the theory be breach of this or any other warranty, negligence, or strict tort.

No person (including any agent, salesman, dealer or distributor) has authority to expand the Company's obligation beyond the terms of this express warranty, or to state that the performance of the product is other than that published by the Company.

One-Year Refrigeration Circuit Warranty

Hermetically sealed motor-compressor assemblies and all components of refrigeration circuits not readily separable therefrom are warranted to the original owner for one (1) year. Refrigerating circuits consist of the motor-compressor assembly, evaporator coil, condenser coil and interconnecting tubing. Repairs under this warranty will be made at the Company's expense provided that the refrigeration circuit is delivered, without shipping damage, transportation prepaid to the factory or to a factory designated repair station, at the Company's option. This one-year warranty does not include any other parts of the equipment such as filters, capacitors, protective devices, or wiring. The Company is not obligated under this warranty for field labor such as service for inspection, removing, packing and/or re-installing the refrigeration circuit, nor for return transportation charges.

General Conditions

The above warranties are void if the Company's equipment has been damaged, misused, subjected to abnormal use or service or its serial number has been altered, defaced or removed, or payment for the equipment is in default. The Company is not responsible for service to correct conditions due to misapplication, improper installation, inadequate wiring, incorrect voltage conditions or unauthorized opening of the refrigeration circuit, nor for consequential damages. In case the Company's equipment is installed in conjunction with cabinets, grilles, louvers, controls or other parts manufactured by others, these warranties shall apply only to the Company's manufactured portion of the equipment. The conditions of the warranty plan are effective for eighteen (18) months from date of factory shipment. The Company reserves the right to make a handling and inspection charge in the case of parts or equipment improperly returned as defective and/or as being in warranty.

